

### Claims

#### We claim:

1. A wafer pad assembly for mounting and cooling a wafer and being  
5 disposed in an ion implanter, the wafer pad assembly comprising:  
a wafer support pad having an upper surface for mounting said wafer and a lower  
surface, said lower surface of said wafer support pad being connected to a coolant  
passage having an inlet section and an outlet section arranged in an opposed  
configuration, wherein said inlet section is counterbalanced by said outlet section.
- 10 2. The wafer pad assembly of claim 1 wherein an inlet end of said inlet  
section and an outlet end of said outlet are located proximate to the center of said wafer.
3. The wafer pad assembly of claim 1 wherein said coolant passageway is  
arranged in a serpentine configuration.
4. The wafer pad assembly of claim 1 wherein said inlet section and said  
15 outlet section are arranged in a symmetrical configuration.
5. The wafer pad assembly of claim 1 wherein said lower surface of said  
wafer support pad is connected to a frame having an outer curved surface in mating  
engagement with a complementary shaped bearing surface of a housing wherein said  
wafer can be rotated about an axis.
- 20 6. The wafer pad assembly of claim 5 wherein said bearing surface further  
comprises a feed passageway and a return passageway in fluid communication with a  
feed line and a return line, respectively.
7. The wafer pad assembly of claim 6 wherein said feed line and said return  
line are in fluid communication with the inlet and the outlet of the cooling passage,  
25 respectively.
8. The wafer pad assembly of claim 5 wherein said frame further comprises a  
curved raceway secured to the housing via one or more cam followers.
9. The wafer pad assembly of claim 6 wherein the outer curved surface of the  
frame functions to seal the feed and return passageways of the bearing surface.
- 30 10. A wafer pad assembly for mounting a wafer and being disposed in an ion  
implanter, the wafer pad assembly comprising:  
a wafer support pad having an upper surface for mounting said wafer and a lower surface,  
said lower surface being connected to a frame having an outer curved surface in mating

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engagement with a complementary shaped bearing surface of a housing wherein said wafer can be rotated about an axis.

11. The wafer pad assembly of claim 10 wherein said outer curved surface is convex.
12. The wafer pad assembly of claim 10 wherein said frame further comprises a  
5 curved raceway secured to the housing via one or more cam followers.
13. The wafer pad assembly of claim 10 wherein said wafer is tiltable about the X axis in the range of about 0 to about 45 degrees.
14. The wafer pad assembly of claim 10 wherein said frame further comprises opposed raceways secured to the housing via a plurality of cam followers.
- 10 15. The wafer pad assembly of claim 10 further comprising a cooling passage connected to the lower surface of said wafer support pad; said cooling passage having an inlet section and an outlet section, wherein said inlet section is counterbalanced by said outlet section.
16. The wafer pad assembly of claim 15 wherein said bearing surface further  
15 comprises a return passageway and a feed passageway, wherein said return passageway is in fluid communication with a return line and the outlet of the cooling passage; and said feed passageway is in fluid communication with the feed line and the inlet of the cooling passage.
17. The wafer pad assembly of claim 15 wherein said bearing surface seals said  
20 return passageway and said feed passageway.

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